VERMONT GWSA PROJECT

Crafting Equitable Policy in Association with Vermont's Global Warming Solutions Act (GWSA) and Vermont's Energy Transition

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The following work was done in collaboration with Vermont Natural Resources Council (VNRC) & Vermont Conservation Voters (VCV).

I. Introduction

Vermont's groundbreaking Global Warming Solutions Act (GWSA), passed by the state legislature on September 22, 2020, turns Vermont's existing energy goals into enforceable mandates in recognition of the urgency of the climate crisis. The goal of the GWSA is to acknowledge the simultaneous need for the reduction of Vermonters' energy burdens and the enhancement of communities' climate resilience. We were asked by the Vermont Natural Resources Council (VNRC) and Vermont Conservation Voters (VCV) to develop a set of recommendations to ensure that the policy's vague but firm goal of fostering a racially just transition away from fossil fuels — building a clean economy in a way that is equitable for all — is accessible and understandable for all legislators. We researched and outlined the "whys and hows" of enacting equitable climate justice in Vermont.

Over the past four months, our group has researched 9 other states' climate policies, including California, Connecticut, Maine, Massachusetts, Minnesota, New York, Oregon, Rhode Island, and Washington. We focused our out-of-state research on the types of policies passed, their popularity, effectiveness, and co-benefits (such as job creation), and the obstacles they have faced throughout their development and implementation. We prioritized developing a thorough understanding of the role that equity plays in climate policy in Vermont, on a national scale, and in specific states and countries with particularly strong, demonstrated commitments to climate policy and justice. We conducted extensive research on Vermont policies, particularly regarding climate, energy efficiency, renewable infrastructure, and electric vehicles, as well as the broader issue of energy inequity. Our two main areas of focus are the disparities in housing and energy burden within Vermont and the need for, and limitations on, deployment of electric vehicles on a large scale throughout the state. The vital importance of these foci informs the policy recommendations that we offer at the end of this report and in our supplementary materials.

Our research also included an interview component. We spoke with climate leaders whose work connects to expanding energy equity, many of whom are most focused on Vermont, along with others who work outside the state. Our conversations primarily centered on the need for weatherization of homes, particularly for renters, and the expansion of electric vehicles in a way that makes electrified transportation accessible to the low-income Vermonters most locked into their current fossil-fueled vehicles. We hope that the connections we developed as we conducted our research will aid our partners in building community and establishing partnerships with other groups promoting energy equity, in Vermont and elsewhere. This project blends traditional research with the insights we gathered from interviews as it lays out the case for a GWSA with clear equity goals that do not leave traditionally marginalized groups behind. We are not experts on energy, equity, or policy, we are all white-passing college students, and we have not experienced most of the sorts of equity issues addressed in this paper. We do not intend for this paper to represent or speak for any of Vermont's residents. Rather, while the depth and breadth of our research has allowed us to focus on crafting a project that uplifts personal interviews and individual stories, particularly those of BIPOC and other historically marginalized communities most impacted by energy inequity issues, it provides only a glimpse into the complexities of achieving a just transition in Vermont. We hope that this project will serve as a springboard for further collaborative work that prioritizes the representation of presently underrepresented communities and expands access to opportunities to participate in future energy equity work.

Our recommendations address the need for:

1. Bringing BIPOC, low-income and other marginalized groups to the table
2. Creating a metric to track and evaluate energy equity and set goals within this framework
3. Creating and/or expanding lower-cost, widely accessible public electric transit
4. Expanding access to electric vehicles and electric vehicle charging stations
5. Creating or enhancing community solar programs to support the development of a fully renewable electric grid
6. Focusing more on workforce development and more well-paying jobs in clean energy
7. Educating Vermonters regarding energy efficiency and existing programs and resources
8. More heavily subsidizing weatherization programs with support for renters and incentives for landlords to weatherize
9. Subsidizing home infrastructure development and energy efficiency
10. Improving and expanding zoning and building codes to make new infrastructure affordable and sustainable

This moment is an opportunity to redefine Vermont's approach to climate policy, with the potential to set Vermont on the path to becoming a national and even global leader in the transition away from fossil fuels. Our research for this project has led us to the following conclusions: The GWSA has the capacity to have a tremendous positive impact on all Vermonters' economic security in the face of climate change. However, it must be structured in acknowledgment of Vermont's history of systemic racism in order to provide particular benefit to historically disenfranchised groups like low-income and BIPOC residents. Lastly, although the GWSA marks a major step toward having an equitable clean economy in Vermont, it cannot be the final piece of climate legislation passed in the state and it cannot succeed if it does not enable all Vermonters to participate in this transition.

II. Methods

As the focus of this course is equity and anti-racism, we have had the opportunity to expand upon our understanding of the intersection of climate justice and racial justice. The coursework laid the foundation for our project and guided the research decisions we have made. After we completed the preliminary section of the course, which involved group readings and weekly discussions, we felt confident in our ability to progress with our increased knowledge of equity, representation, and environmental justice.

The first step we took was to understand the Global Warming Solutions Act (GWSA). We read through the act and acquainted ourselves with the goals and language involved. We also met with our project partners to discuss their goals for this project. Based on our discussions, we developed a list of deliverables, including this policy recommendation paper, a one-episode podcast on the topic, and Vermont energy equity infographics. These deliverables are representative of the research and work our group carried out throughout the course. They also serve to frame the goals of the GWSA and to inform how it can be implemented effectively in a just and pragmatic manner.

With this outline in mind, we set out to compare the GWSA to other policies in the United States. We divided the country into four regions: the South, Northeast, Midwest, and West. Each member took responsibility for a region, with one member focusing on Vermont itself. We all researched climate justice policies and programs that exist in those regions and that could be applied to Vermont effectively under the GWSA. This preliminary investigation drove us to focus on three main areas of climate justice that require attention: energy efficiency, clean transportation, and inclusion. To learn more about these issues, we reached out to a wide variety of experts and conducted interviews and discussions over Zoom and email. We started with a spreadsheet of names and contact information for professors and other contacts whom we have worked with in the past. Constructing this spreadsheet helped us build up a network of Vermonters and others who helped provide insight into issues surrounding energy equity and the implementation of a “just transition.” We used these interviews and our other policy research to create a list of policy recommendations that we believed could assist with the equitable implementation of the GWSA.

We also decided to build an audio story with these interviews in order to present a more human side of the topic, as there is more to energy justice than simply policy and data. By sharing people’s voices, we are able to provide an alternative perspective. Whereas this paper aims to present our research and set forth our recommendations, the audio story addresses the “whys” of the issue, allowing individuals working to address issues of energy inequity to explain the need for such work to be done. Ahead of developing our audio story, we obtained permission to record our interviews with each expert, using a modified course consent form. From there, we uploaded the audio into a transcription service and used notes from the interviews to identify potentially effective quotes. Next steps included listening back to those portions of the interviews and pulling strong clips, creating an outline that connects key ideas and incorporates some narration, recording the narration, putting the entire podcast together, and, finally, reviewing it as a group and with our sources.

In creating the energy equity infographic, we built on research conducted by the Vermont Energy Action Network (EAN) and Efficiency Vermont. We gathered data from the US Census, the American Community Survey, and the US Department of Energy regarding Vermont demographics information, state energy use and burden, home and building infrastructure, and transportation. We then took these data and compiled and visualized the most relevant findings in Adobe Illustrator, formatting an understandable infographic to present at the Woodin Colloquium and to explain our findings to the VNRC and VCV.

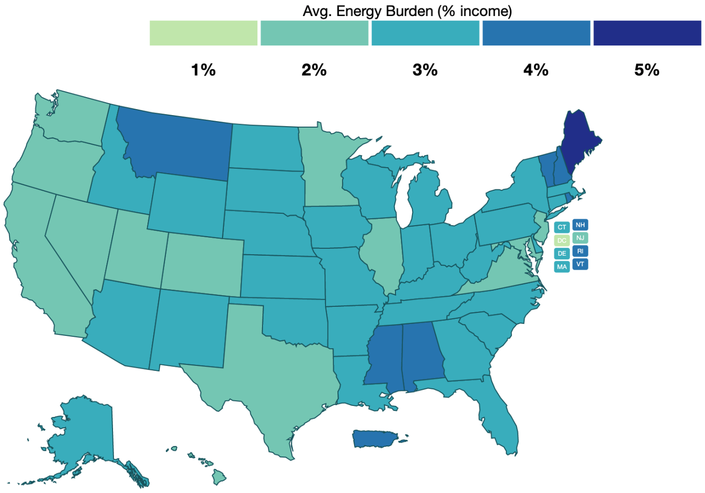
Regarding the broader question of what a just transition should look like for the state of Vermont, we developed a set of recommendations for our partners addressing barriers to participation in the GWSA Just Transitions Subcommittee, as informed by our overall research and learning throughout the course. We then shared our recommendations with our project partners. The document includes list-style notes on the topic, an example email to be sent to potential committee members, and action items that we believe should be taken into consideration during the formation of the Just Transitions Subcommittee.

Finally, in order to promote accountability of both the Middlebury College Program in Environmental Studies and our partners at the Vermont Natural Resources Council and Vermont Conservation Voters in continuing on with this important work regarding energy equity and climate justice after the completion of this course, we decided to collaborate with members of the Conservation Law Foundation (CLF), who are also conducting research for the VNRC and VCV. As such, we presented our research and recommendations at the CL Solutions Act Equity Framework meeting on November 13th, 2020.

III. Vermont Policies and Needs

Vermont is one of the most advanced states in the nation when it comes to climate action and has one of the lowest per-capita energy consumption rates and the single lowest energy emissions rate of any state in the US.[1] However, Vermont still has a long way to go in terms of energy equity. With harsh winters, a significant rural population, and high energy costs, Vermont has one of the highest rates of energy burden[2] (Figure 1). Energy burden is defined as "expenditure on energy as a percentage of income."[3] When a household suffers from a higher energy burden, this can be described as fuel poverty or energy insecurity.[4]

Energy poverty does not just mean that household members cannot charge a phone or that they have to spend more time without their lights on. Energy poverty has much more serious implications. According to an EIA survey, 21 percent of households reduced or forwent food or medicine to pay for energy, and 11 percent of households had their homes at unhealthy temperatures.[5] High energy burdens also mean that less money can be spent on housing, transportation, childcare, and other basic needs.



Low-Income Energy Affordability Data Tool Map Export (https://www.energy.gov/eere/slsc/maps/lead-tool)
Exported On: 11/3/2020
SMI: 0% - 30%, 30% - 60%, 60% - 80%, 80% - 100%, 100%+
Building Age: Before 1940, 1940 - 59, 1960 - 79, 1980 - 99, 2000 - 09, 2010+
Heating Fuel Type: Utility Gas, Bottled Gas, Electricity, Fuel Oil, Coal, Wood, Solar, Other, None
Building Type: 1 unit detached, 1 unit attached, 2 units, 3 - 4 units, 5 - 9 units, 10 - 19 units, 20 - 49 units, 50+ units, Boat/RV/Van, Mobile/Trailer
Rent/Own: Renter-occupied, Owner-occupied

Figure 1. National Energy Burdens from the "Low-Income Energy Affordability Data (LEAD) Tool"

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[1] "Vermont - Rankings - U.S. Energy Information Administration (EIA)," accessed November 3, 2020, https://www.eia.gov/state/rankings/?sid=VT.

[2] Ookie Ma et al., "Low-Income Energy Affordability Data (LEAD) Tool Methodology," July 23, 2019, https://doi.org/10.2172/1545589.

[3] Teller-Elsberg, Jonathon et al., "Energy Costs and Burdens in Vermont: Burdensome for Whom? A Report for the Vermont Low Income Trust for Electricity, Inc" (the Institute for Energy and the Environment at Vermont Law School, December 2014), 5, http://static1.squarespace.com/static/51b0ce25e4b0e8d244de368b/t/54ac598de4b0153bb99937a7/1420581261595/VLS+Energy+Burden+Report.pdf.

[4] Teller-Elsberg, Jonathon et al., 33.

[5] Residential Energy Consumption Survey (RECS): Table HC1.1 Fuels Used and End Uses in U.S. Homes by Housing Unit Type, 2015. Energy Information Administration, May, 2018. https://www.eia.gov/consumption/residential/data/2015/hc/php/hc11.1.php

One study of energy poverty in North Carolina found that common responses of people in energy poverty were to stop paying bills, turn off their heat, use their oven or stove as a heat source, and cut down on other purchases such as groceries.[6] These responses, in turn, can create more hurdles to health and financial stability. This lack of access to cheap, reliable and efficient energy leads to a plethora of negative externalities that often go unnoticed and unrecognized.

Jacqueline Patterson, Director of the NAACP Environmental and Climate Justice Program, discusses how, "climate change is really a byproduct of systemic world winners and losers... It's the 99 percent that are on the losing end in various degrees."[7] Low-income people are often forgotten or ignored in the environmental movement and this is clearly the case when it comes to renewable energy and energy in general. As energy is such an integral part of daily life, people who do not have access to it or cannot afford it simply have one more obstacle to overcome.

The question we must ask is who will be benefiting from the climate policies such as the Global Warming Solutions Act? Patterson says, "just transition is about energy access and affordability, it's about livelihood for oneself and one's family, and it's about being sensitive about tax revenues and how we're shifting them."[8] Excluding large portions of the United States from solar energy will not allow for a transition to clean energy and zero emissions. When looking at energy burdens throughout the country and more specifically in Vermont, we see that it is not evenly distributed among all people. We must take a closer look at the demographics of the state to better understand the inequality at play.

The Global Warming Solutions Act

In September of 2020, Vermont enacted the Global Warming Solutions Act (GWSA). This Act turned Vermont's 2016 Comprehensive Energy Plan into requirements rather than goals, with some changes in the exact figures of certain emissions goals. Another component of the GWSA is the inclusion of a Just Transitions Subcommittee:

> This subcommittee shall ensure that strategies consider the disproportionate impact of climate change on rural, low income, and marginalized communities and that programs and incentives for building resilience are designed to be accessible to all Vermonters and do not unfairly burden any groups, communities, geographic locations, or economic sectors.[9]

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[6] Conor Harrison and Jeff Popke, "'Because You Got to Have Heat': The Networked Assemblage of Energy Poverty in Eastern North Carolina," *Annals of the Association of American Geographers* 101, no. 4 (July 2011): 949–61, https://doi.org/10.1080/00045608.2011.569659.

[7] Bill McKibben, "Climate Justice Is Racial Justice Is Gender Justice," *Yes! Magazine* (blog), accessed November 23, 2020, https://www.yesmagazine.org/issue/just-transition/2017/08/18/climate-justice-is-racial-justice-is-gender-justice.

[8] Ibid.

[9] "Bill Status H.688 (Act 153)," 11, accessed November 23, 2020, https://legislature.vermont.gov/bill/status/2020/H.688.

Later, the GWSA again asserts that the initiatives, programs, and strategies of the Plan should further the objective of prioritizing "the most cost-effective, technologically feasible, and *equitable* greenhouse gas emissions reduction pathways and adaptation and preparedness strategies informed by scientific and technical expertise."[10] We can see here in the very language of the act that the GWSA goes beyond traditional climate policy by emphasizing the fact that climate change is as much an issue of equity as it is an issue of the environment. Matters of equity have long been missing from the environmental movement, so this is a much-needed addition to the scope of Vermont climate policy. Nevertheless, the passage of the GWSA is only the first step. It is now necessary to begin implementing policies that will enable Vermont to reach these emissions requirements. So, as we move forward in taking action, it is crucial that equity not be overlooked in the application of the GWSA. It is one thing to recognize the need for equity, and it is an entirely different thing to establish equity.

Pre-GWSA Policies and Programs

Before the enactment of the GWSA, the 2016 Comprehensive Energy Plan included mentions of equity.[11] Even so, these statements were not as directly articulated as in the GWSA. Outside of this 2016 Plan, however, the state had enacted various efforts to ensure energy equity for low-income Vermonters. Below are the descriptions of equity-related programs and policies that existed before the enactment of the GWSA.

Transportation

- **New plug-in electric vehicle incentives**
  First-come, first-served program offering incentives for low-income individuals to purchase new plug-in hybrid or all-electric vehicles.[12]
- **MileageSmart**
  Provides financial assistance to low-income Vermonters looking to buy high-fuel-efficiency used vehicles.[13]
- **Emissions Repair Program**
  Offers financial assistance to low-income Vermonters to repair vehicles that failed emissions testing. This program is not yet off the ground, but was authorized by the 2019 Transportation Bill.[14]
- **Go!Vermont**

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[10] Ibid. 16

[11] "Comprehensive Energy Plan," Vermont Department of Public Service, 2016, 16, https://outside.vermont.gov/sov/webservices/Shared%20Documents/2016CEP_Final.pdf.

[12] "Statewide Vehicle Incentive Programs | Agency of Transportation," accessed November 24, 2020, https://vtrans.vermont.gov/planning/projects-programs/vehicle-incentives.

[13] Ibid.

[14] Ibid.

Promotes car sharing and carpool services. These programs may not be the most financially feasible for low-income Vermonters.[15]

- **The 2019 Transportation Bill**

  Public transit program that provided funding and authorization for public transportation programs including electric buses in some urban areas, bus passes, and carpool/car share services. It also increased funding for rail transportation.[16]

Energy Efficiency

- **Efficiency Vermont**

  Offers mobile home weatherization, subsidized mobile home replacement, and free energy-efficient appliances.[17]
- **Weatherization programs through state partnerships with weatherization organizations**

  Programs including Capstone Weatherization, Champlain Valley Weatherization, NETO Weatherization, and SEVCA Weatherization provide efficiency consultations, renovations, and no-cost weatherization to Vermonters' homes.[18]
- **Fuel Assistance Program**

  Provides low-income Vermonters with heating fuel. This might not necessarily be sustainable, but it does reduce energy burdens.[19]

Issues to Left to Address

The above programs are a great start, but there is still a significant gap in energy burden that needs to be addressed in order to achieve a just transition. While the GWSA will not improve upon these programs inherently, it does offer the opportunity to do so. When looking at equity improvements that are needed within the energy scope, we have identified the following issues:

Clean Transportation

The 2016 Comprehensive Energy Plan sets the following goals for the transportation sector:

- Reduce energy used for transportation by 20% from 2015 levels by 2025
- Increase the share of renewable transportation energy by 10% by 2025
- Increase the share of heavy-duty renewable-powered vehicles by 10% by 2025
- 10% of the transportation fleet are electric vehicles (EVs) by 2025
- Reduce transportation emissions by 30% by 2025[20]

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[15] "Go! Vermont," Go! Vermont, accessed November 24, 2020, https://www.connectingcommuters.org/.

[16] "Bill Status H.529 (Act 59)," accessed November 24, 2020, https://legislature.vermont.gov/bill/status/2020/H.529.

[17] "Income-Based Assistance | Efficiency Vermont," accessed November 24, 2020, https://www.efficiencyvermont.com/services/income-based-assistance.

[18] "Weatherization Partners | Department for Children and Families," accessed November 24, 2020, https://dcf.vermont.gov/partners/weatherization.

[19] "Fuel Assistance | Department for Children and Families," accessed November 24, 2020, https://dcf.vermont.gov/benefits/fuel-assistance.

[20] "Comprehensive Energy Plan," 140.

With transportation being the highest source of emissions in Vermont, these goals are undoubtedly important.[21] However, despite the existing incentives for EVs, they are still out of the price range of most low-income households. As explained by Dave Roberts of Drive Electric Vermont, the most significant incentive for EVs is still the federal tax credit.[22] But, people can only use this credit if they have tax liability, which many low-income households simply do not have. In addition, many incentives are only for new vehicles, which are also out of the price range of low-income households. There is also the added nuance of a strong urban-rural divide, which creates different needs for different areas. For example, public transportation may be more challenging to implement in rural areas where residents are more broadly dispersed. On the other hand, it would not be necessary for everyone in an urban area to own a car if public transportation and car share options were sufficient. Roberts explains that, because of this, there will not be a fix-all solution.[23] There need to be clean transportation options for both urban and rural communities with clean public transportation options in urban areas and strong EV incentives for Vermonters in rural areas. For the average Vermonter, 45 percent of energy spending is attributed to transportation costs.[24] This figure is likely higher for poorer Vermonters who only have access to inefficient forms of transportation.

Efficient Home Heating

The 2016 Comprehensive Energy Plan sets the following goals for the building sector:

- Improve the efficiency of at least 25% of the housing stock by 2025
- Reduce annual fuel needs and bills by 25% in served housing units
- Reduce fossil fuel consumption by 10% annually by 2025

Building efficiency is something that impacts low-income Vermonters significantly. With people of color and low-income households being more likely to rent housing or own a mobile home rather than own permanent housing structures, they are more likely to suffer from inefficient heating systems and a lack of access to weatherization.[25] There are many income-based weatherization programs in place in Vermont. However, funding does not enable these programs to meet the needs of all residents. In addition, for renters, there are alternative barriers. As explained by Tim Yandow and Dwight DeCoster of Champlain Valley Weatherization, landlords are not incentivized to pay for weatherization or more efficient heating technology, especially if their tenants pay the utilities.[26] With the continuing pandemic and the subsequent recession, new low-income Vermonters are being made every day while Vermont continues to have one of the greatest shortages in housing stock in the nation.[27] In order to meet the CEP goals for home heating and to protect the health of Vermonters, the people who are suffering the most from poor insulation and housing structures need to be provided assistance.

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[21] "Vermont Greenhouse Gas Emissions Inventory and Forecast: Brief 1990 – 2016" (Vermont Agency of Natural Resources, 2020), 6, https://dec.vermont.gov/sites/dec/files/aqc/climate-change/documents/_Vermont_Greenhouse_Gas_Emissions_Inventory_and_Forecast_1990-2016.pdf.

[22] Dave Roberts (Drive Electric Vermont) in conversation with the authors, November 2020.

[23] Ibid.

[24] Justine Sears and Kelly Lucci, "Vermont Energy Burden Report" (Efficiency Vermont, October 2019), 7, https://www.efficiencyvermont.com/news-blog/whitepapers/vermont-energy-burden#.

[25] "Household Income by Tenure," Tableau Software, accessed November 25, 2020, https://public.tableau.com/views/Householdincomebytenure/Tenurebyhouseholdincome?:embed=y&:showVizHome=no&:host_url=https%3A%2F%2Fpublic.tableau.com%2F&:embed_code_version=3&:tabs=no&:toolbar=yes&:animate_transition=yes&:display_static_image=no&:display_spinner=no&:display_overlay=yes&:display_count=yes&:loadOrderID=0.

Representation and Inclusion

Although Vermont has a 94.2% white population, the percentage of non-white households has been increasing steadily since 2000. The wealth gap for all people in Vermont is also continuing to grow. The divisions among different demographics can lead to continued systems of disparity. In order to counter this division and to foster a just transition, the environmental movement needs to provide seats at the table to ensure a collaborative effort that meets the needs of all Vermonters. Virginie Diambou of the Champlain Valley Office of Economic Opportunity explained that New Americans also face unique challenges in navigating the energy landscape. These challenges include language barriers, lack of access to resources, and limited awareness of energy opportunities.[28]

Low-income and marginalized people are being hurt the most by climate change while contributing the least to emissions. Policies cannot be formulated from a telescope looking out at these groups. Vermont needs to make genuine efforts to understand the struggles of these demographics and collaborate to build solutions that best help them overcome barriers to clean, affordable and efficient energy. Such efforts start with the Just Transitions Committee. There must be a thorough search to invite as many diverse representatives as possible into this committee. It also must be noted that there must be consideration of how to remove barriers to participation, whether in the form of compensation, meals, childcare, etc. Beyond the Just Transitions Committee, these ideas still apply when trying to gain community input. Lastly, metrics of equity need to be created in order to set measurable standards and track progress. For example, the state could create an energy equity report that consists of demographic statistics on energy burden, availability and use of energy incentives, and access to clean transportation.

IV. GWSAs and Other Climate Policies and Programs in other States

After researching climate policies in every region of the United States, we decided to focus on nine states with robust policies and programs that we could use to inform our recommendations for Vermont's implementation of the GWSA. These states are mostly in the Northeast and on the West Coast, with the exception of Minnesota, which has been a leader in sustainable transportation and environmental justice in the Midwest. In order to compare these states to Vermont effectively, we first needed to look at some key metrics side-by-side. As seen in Table 1, below, we started by comparing carbon emissions breakdowns in each state to have a sense of what the states' priorities might be in designing programs to reduce emissions, as well as where the most relevant environmental justice issues might be in each state. Next, we compared population demographics such as total population, race and ethnicity, age, disability rates, poverty rates, and the portion of people living in rural locations. This is important in thinking about the applicability of programs in other states to Vermont, because Vermont's population is generally older, less diverse, and more rural than most of the states compared to it below. We then compared the average energy burden, measured in percentage of income spent on a household's energy costs, of residents of each state, as well as governmental efforts on climate action, such as carbon emissions reduction requirements and reporting mandates, if they exist, and what councils, committees, or other positions in local governments are dedicated to environmental justice efforts or the implementation of a GWSA or similar bill. We also compared, of course, the main pieces of climate and environmental justice legislation in each state, as well as what we see as the most important programs and implementation efforts for putting the above policies and emissions reductions requirements into place in each of the states. At the bottom of Table 1 are two lines indicating whether each state is a part of the Regional Greenhouse Gas Initiative (RGGI) and/or the Transportation and Climate Initiative (TCI). We included these two programs because we saw membership in them as being indicative of a state's commitment to environmental sustainability efforts, and because these programs can be important sources of funding for programs in a given state.

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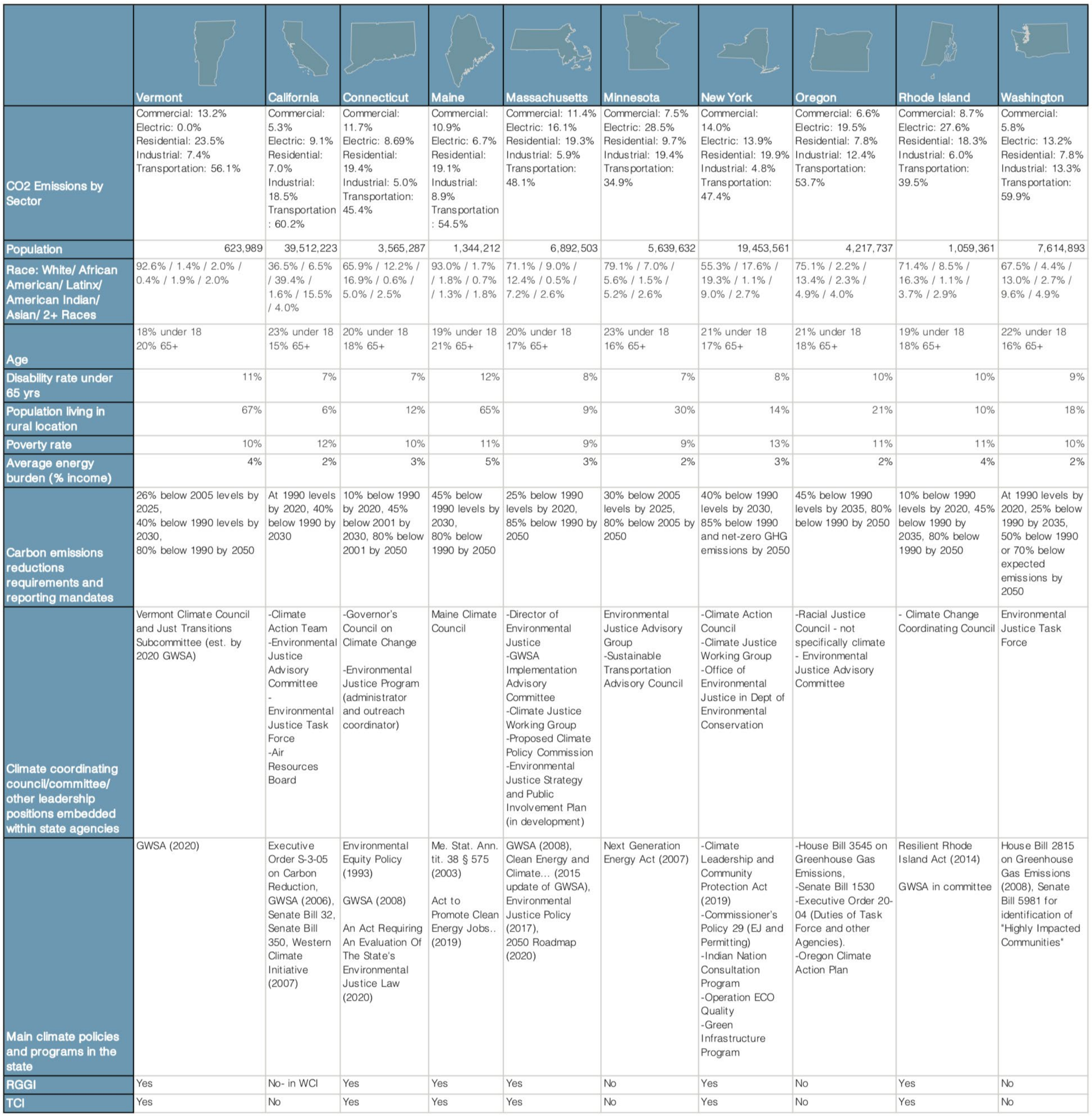
[26] Virginie Diambou et al., Champlain Valley Weatherization Interview, Zoom, October 20, 2020.

[27] Ibid.

[28] Ibid.

You can see these comparisons below in Table 1, and then read in more detail about the key policies and programs in each state, as well as what we learned from each state in terms of what can be applied to Vermont's GWSA implementation efforts, in the subsections below. Click on the state name below to jump to the section for that state directly:

1. California
2. Connecticut
3. Maine
4. Massachusetts
5. Minnesota
6. New York
7. Oregon
8. Rhode Island
9. Washington



	Vermont	California	Connecticut	Maine	Massachusetts	Minnesota	New York	Oregon	Rhode Island	Washington
CO2 Emissions by Sector	Commercial: 13.2% Electric: 0.0% Residential: 23.5% Industrial: 7.4% Transportation: 56.1%	Commercial: 5.3% Electric: 9.1% Residential: 7.0% Industrial: 18.5% Transportation: 60.2%	Commercial: 11.7% Electric: 8.69% Residential: 19.4% Industrial: 5.0% Transportation: 45.4%	Commercial: 10.9% Electric: 6.7% Residential: 19.1% Industrial: 8.9% Transportation: 54.5%	Commercial: 11.4% Electric: 16.1% Residential: 19.3% Industrial: 5.9% Transportation: 48.1%	Commercial: 7.5% Electric: 28.5% Residential: 9.7% Industrial: 19.4% Transportation: 34.9%	Commercial: 14.0% Electric: 13.9% Residential: 19.9% Industrial: 4.8% Transportation: 47.4%	Commercial: 6.6% Electric: 19.5% Residential: 7.8% Industrial: 12.4% Transportation: 53.7%	Commercial: 8.7% Electric: 27.6% Residential: 18.3% Industrial: 6.0% Transportation: 39.5%	Commercial: 5.8% Electric: 13.2% Residential: 7.8% Industrial: 13.3% Transportation: 59.9%
Population	623,989	39,512,223	3,565,287	1,344,212	6,892,503	5,639,632	19,453,561	4,217,737	1,059,361	7,614,893
Race: White/ African American/ Latinx/ American Indian/ Asian/ 2+ Races	92.6% / 1.4% / 2.0% / 0.4% / 1.9% / 2.0%	36.5% / 6.5% / 39.4% / 1.6% / 15.5% / 4.0%	65.9% / 12.2% / 16.9% / 0.6% / 5.0% / 2.5%	93.0% / 1.7% / 1.8% / 0.7% / 1.3% / 1.8%	71.1% / 9.0% / 12.4% / 0.5% / 7.2% / 2.6%	79.1% / 7.0% / 5.6% / 1.5% / 5.2% / 2.6%	55.3% / 17.6% / 19.3% / 1.1% / 9.0% / 2.7%	75.1% / 2.2% / 13.4% / 2.3% / 4.9% / 4.0%	71.4% / 8.5% / 16.3% / 1.1% / 3.7% / 2.9%	67.5% / 4.4% / 13.0% / 2.7% / 9.6% / 4.9%
Age	18% under 18 20% 65+	23% under 18 15% 65+	20% under 18 18% 65+	19% under 18 21% 65+	20% under 18 17% 65+	23% under 18 16% 65+	21% under 18 17% 65+	21% under 18 18% 65+	19% under 18 18% 65+	22% under 18 16% 65+
Disability rate under 65 yrs	11%	7%	7%	12%	8%	7%	8%	10%	10%	9%
Population living in rural location	67%	6%	12%	65%	9%	30%	14%	21%	10%	18%
Poverty rate	10%	12%	10%	11%	9%	9%	13%	11%	11%	10%
Average energy burden (% income)	4%	2%	3%	5%	3%	2%	3%	2%	4%	2%
Carbon emissions reductions requirements and reporting mandates	26% below 2005 levels by 2025, 40% below 1990 levels by 2030, 80% below 1990 by 2050	At 1990 levels by 2020, 40% below 1990 by 2030	10% below 1990 by 2020, 45% below 2001 by 2030, 80% below 2001 by 2050	45% below 1990 levels by 2030, 80% below 1990 by 2050	25% below 1990 levels by 2020, 85% below 1990 by 2050	30% below 2005 levels by 2025, 80% below 2005 by 2050	40% below 1990 levels by 2030, 85% below 1990 and net-zero GHG emissions by 2050	45% below 1990 levels by 2035, 80% below 1990 by 2050	10% below 1990 levels by 2020, 45% below 1990 by 2035, 80% below 1990 by 2050	At 1990 levels by 2020, 25% below 1990 by 2035, 50% below 1990 or 70% below expected emissions by 2050
Climate coordinating council/committee/ other leadership positions embedded within state agencies	Vermont Climate Council and Just Transitions Subcommittee (est. by 2020 GWSA)	-Climate Action Team -Environmental Justice Advisory Committee -Environmental Justice Task Force -Air Resources Board	-Governor's Council on Climate Change -Environmental Justice Program (administrator and outreach coordinator)	Maine Climate Council	-Director of Environmental Justice -GWSA Implementation Advisory Committee -Climate Justice Working Group -Proposed Climate Policy Commission -Environmental Justice Strategy and Public Involvement Plan (in development)	Environmental Justice Advisory Group -Sustainable Transportation Advisory Council	-Climate Action Council -Climate Justice Working Group -Office of Environmental Justice in Dept of Environmental Conservation	-Racial Justice Council - not specifically climate - Environmental Justice Advisory Committee	- Climate Change Coordinating Council	Environmental Justice Task Force
Main climate policies and programs in the state	GWSA (2020)	Executive Order S-3-05 on Carbon Reduction, GWSA (2006), Senate Bill 32, Senate Bill 350, Western Climate Initiative (2007)	Environmental Equity Policy (1993) GWSA (2008) An Act Requiring An Evaluation Of The State's Environmental Justice Law (2020)	Me. Stat. Ann. tit. 38 § 575 (2003) Act to Promote Clean Energy Jobs.. (2019)	GWSA (2008), Clean Energy and Climate... (2015 update of GWSA), Environmental Justice Policy (2017), 2050 Roadmap (2020)	Next Generation Energy Act (2007)	-Climate Leadership and Community Protection Act (2019) -Commissioner's Policy 29 (EJ and Permitting) -Indian Nation Consultation Program -Operation ECO Quality -Green Infrastructure Program	-House Bill 3545 on Greenhouse Gas Emissions, -Senate Bill 1530 -Executive Order 20-04 (Duties of Task Force and other Agencies). -Oregon Climate Action Plan	Resilient Rhode Island Act (2014) GWSA in committee	House Bill 2815 on Greenhouse Gas Emissions (2008), Senate Bill 5981 for identification of "Highly Impacted Communities"
RGGI	Yes	No- in WCI	Yes	Yes	Yes	No	Yes	No	Yes	No
TCI	Yes	No	Yes	Yes	Yes	No	Yes	No	Yes	No

Table 1. Comparison of State Demographics and Climate Policies[29] [30] [31]

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[29] Dalzell, Noa, "State Climate Policy Network," *Climate XChange*, Accessed October 25, 2020, https://climate-xchange.org/network/

[30] "Quick Facts," *United States Census*, Accessed October 26, 2020, https://www.census.gov/quickfacts/VT

[31] "Country Scorecard," *Environmental Performance Index*, Accessed December 10, 2020, https://epi.yale.edu/epi-results/2020/country/usa

CALIFORNIA

Key Policies and Programs

- Executive Order S-3-05 for carbon reductions
- GWSA (2006)
- Senate Bill 32
- Senate Bill 350
- Environmental Justice Advisory Committee (EJAC)
- California Air Resources Board
- Western Climate Initiative (2007)

California's industrial contributions to the nation's climate crisis spurred the first push to set state goals in greenhouse gas emission reductions. In a 2005 public statement, Governor Arnold Schwarzenegger explained that "because of California's massive and growing economy, the state is the 12th largest emitter of carbon in the world despite leading the nation in energy efficiency standards and leading role in protecting its environment."[32] On June 1st, 2005, Executive Order S-3-05 established the greenhouse gas emissions caps for the state, requiring a reduction of greenhouse gas emissions to 2000 levels by 2010, to 1990 levels by 2020, and to a level 80% below 1990 levels by 2050.[33] Yet to achieve legislative authority to implement this measure, an Assembly Bill was required. AB 32 requires the California Air Resources Board (CARB) to develop regulations to reduce California's greenhouse gas emissions to 1990 levels by 2020, representing a 30% reduction statewide. The California Air Resources Board adds that this transition should be "generating jobs, promoting a growing, clean-energy economy and a healthy environment for California at the same time."[34]

AB 32 demands that the state establish an Environmental Justice Advisory Committee (which works closely with California's Environmental Justice Task Force) to advise the CARB on developing the Scoping Plan for these reductions and any other pertinent matter in implementing AB 32. This committee has only met 12 times since 2007, but drafts the periodically-released scoping plan that the CARB develops to redirect efforts to meet emissions goals.[35] The most significant investment this program has made in equity measures was a mobilization of the state's cap-and-trade program to support "disadvantaged communities" (DACs).[36] The general goals set in 2017 are as follows: invest in DAC "access to clean technologies," ensure air pollution reductions where they are needed the most, integrate across policies and programs to ensure complementary policies provide maximum benefits to DACs, implement CARB and California Energy Commission recommendations to overcome barriers to clean energy and clean transportation options for low-income residents, provide energy-efficient affordable housing near job centers and transit, and apply the regulations of AB 617 to dramatically improve air quality in local communities through targeted action plans.[37] These measures all work to ensure an equitable distribution of the benefits conferred by AB 32's mandatory carbon reductions.

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[32] "Gov. Schwarzenegger Signs Landmark Legislation to Reduce Greenhouse Gas Emissions," *Office of the Governor*, September 28, 2006, https://web.archive.org/web/20060928031617/http:/gov.ca.gov/index.php?/press-release/4111

[33] Schwarzenegger, Arnold, "Executive Order S-3-05," June 1, 2005, 1-2, http://static1.squarespace.com/static/549885d4e4b0ba0bff5dc695/t/54d7f1e0e4b0f0798cee3010/1423438304744/California+Executive+Order+S-3-05+(June+2005).pdf

[34] California Air Resources Board, "California's 2017 Climate Change Scoping Plan: Executive Summary," November 2017, Arb.ca.gov

[35] Ibid.

[36] Ibid.

The cap-and-trade program that the CARB has signed on to is linked to the Western Climate Initiative, which joins Quebec, Ontario, and 40 countries and 20 subnational entities (states and provinces) that represent nearly a quarter of global emissions to develop emissions trading programs. By 2017, these programs initiated 30,000 projects installing efficiency measures in homes, 105,000 rebates for zero-emission and plug-in hybrids, 16,000 acres of land preserved or restored, 200 transit agency projects funded, 6,200 trees planted in urban areas, and 1,100 new affordable housing units under contract. 50% of these projects benefit DACs, adding up to a total of 70,000 projects benefiting the 25% of California's population deemed "disadvantaged." While the CARB's goals for 2030 only call for a shift to 50% renewable electricity statewide, they do encourage significant efficiency measures in state-run programs by doubling the energy efficiency of the entire existing building stock through weatherization programs, offering 100% zero-emission buses, subsidizing 4 million low-cost EV's, and altering zoning and planning policy to accommodate high-density, transit-oriented housing.[38]

Additionally, Senate Bill 350, or the Clean Energy and Pollution Reduction Act of 2015, mandated that the California Energy Commission compose a report that determines the barriers to the adoption of energy programs in the state.[39] This study addressed homeownership rates, and noted that for individuals billed flatly by their landlord, "it is difficult to ensure that the energy savings realized by the property owner are conveyed to the low-income tenant through lower rents or utilities charges."[40] The report also emphasized the importance of removing policy barriers to "targeting contracting opportunities with small and diverse-owned businesses" and "increasing and improving outreach to small and diverse-owned businesses."[41] The most common barriers to energy efficiency program adoption found in this report were "upfront costs, financing, program design, ineffective information and outreach, high rental populations, and physical home attributes." One result of this report was a pilot program that used LIHEAP funding to bring the multiple benefits of solar power to low-income communities. The "Solar for All California" pilot program launched in 2010 used $14.7 million of California's annual

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[37] Ibid.

[38] Ibid.

[39] California Energy Commission. "SB 350 Barriers Study." 2016. https://www.energy.ca.gov/rules-and-regulations/energy-suppliers-reporting/clean-energy-and-pollution-reduction-act-sb-350/sb

[40] Ibid, 30.

[41] Ibid, 70.

LIHEAP allocation along with more than \$3.5 million leveraged through local and other partners to install rooftop solar systems on low-income homes.

The Upshot: All of these transformations to California's energy system are afforded by funds obtained by a *Cap-and-Invest* system that is particularly applicable to the growth-oriented government of California. It should be noted that California's GDP is larger than that of any other state, whereas Vermont's GDP is consistently one of the smallest.[42] Funds derived from "Cap and Invest" programs like those initiated by involvement in the Western Climate Initiative in a collaboration between the CARB and the Environmental Justice Advisory Committee may not be attainable in the same way in Vermont. Vermont has never had an internal fossil fuel electricity generation system, so "Cap and Invest" programs like the products of the Western Climate Initiative are unlikely to be applicable to Vermont on a wide scale. While the output and direction of this effort is an example for Vermont's Just Transitions Subcommittee to emulate, Vermonters will need to devise different means of financing these types of programs to apply to Vermont's unique economic conditions. Yet this should not deter the subcommittee from finding inspiration in the work accomplished by CARB and the EJAC.

However, much can be learned from the mandatory report on barriers to the adoption of energy programs conducted by California's Energy Commission. Whether these barriers are translated to apply to Vermont's own unique position in the equity realm, or if they inspire lawmakers in Vermont to mandate utility officials to do their own barriers reports, California's energy policies in general highlight the importance of developing a metric to assess barriers to the adoption of energy programs, and to hold utilities accountable for the assessment of systemic inequities.

CONNECTICUT

Key Policies and Programs

- Environmental Equity Policy (1993)
- Global Warming Solutions Act (2008)
- Environmental Justice Law (2008)
- An Act Requiring an Evaluation of the State's Environmental Justice Law (2020)
- Environmental Justice Program (within CT Department of Energy and Environmental Protection)

Connecticut, like Vermont, is a member of the Regional Greenhouse Gas Initiative and the proposed Transportation and Climate Initiative. Although the state first made GHG reduction goals in 2004 and a Climate Action Plan in 2005, Connecticut legislature passed a state-wide Global Warming Solutions Act in 2008, which established GHG reduction goals with shifting baseline targets.[43] As of 2017 data, Connecticut had reached its initial benchmark of a 10% reduction from 1990 levels by 2020. This reduction goal has been reached whether using a consumption-based model, with which the state has achieved a 10.5% reduction, or a generation-based accounting approach, with which the state has reached a 12.3% reduction goal.[44]

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[42] Federal Reserve, October, 2020, "Real Gross Domestic Product for California." https://fred.stlouisfed.org/series/CARGSP

Although Connecticut was one of the first states to acknowledge, legally, the intersection of environmental issues and equity in 1993 with the Environmental Equity Policy, and then passed an additional Environmental Justice Law in 2008, activists and lawmakers argue that not enough difference has been made in the reality that many Connecticuters face. Many examples of underregulated environmental injustices remain in the state, mostly relating to industrial activity. State Representative Geraldo Reyes (D-Waterbury) proposed HB 7008, *An Act Requiring an Evaluation of the State's Environmental Justice Law.*[45] He says that this is not necessarily because he is an environmentalist, but rather, the issue was brought to his attention because he can smell fumes from a recycling plant, stenches from a waste treatment plant, and see dust from a nearby asphalt company all from his own backyard in Waterbury, Connecticut.[46] This type of representation, which brings voices of those who have actually experienced environmental injustices to the table, is very important to have in legislative bodies. Connecticut's legislation emphasizes the importance of community involvement, particularly in environmental justice communities, but legislators like Reyes make it clear that this intention needs to be put into action, and that simply writing the policy is not enough. The 2020 legislation updates state laws with provisions to require public notice and sufficient opportunity for public input, as well as stricter requirements for development proposals. It also establishes the opportunity for municipalities to make "community environmental benefit agreements" with the polluting firms to fund air and water monitoring, as well as health care, including asthma screenings, in the potentially affected areas and surrounding communities.[47]

Connecticut's Department of Energy and Environmental Protection (CTDEEP) runs an Environmental Justice (EJ) Program to incorporate environmental justice efforts into CTDEEP actions. This includes assessing the effectiveness of efforts in urban areas, expanding efforts to respond to environmental problems in EJ communities, strategically increasing public participation in agency decision-making processes and public hearings, working with various departments of health to identify community health concerns, working on public education, and decreasing language barriers to access and participation.

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[43] "Greenhouse Gas Emissions Reduction Targets and Market-based Policies," *NCSL*, January 10, 2020, https://www.ncsl.org/research/energy/greenhouse-gas-emissions-reduction-targets-and-market-based-policies.aspx

[44] "2017 Connecticut Greenhouse Gas Emissions Inventory," *CT DEEP*, 2017, https://portal.ct.gov/-/media/DEEP/climatechange/2017_GHG_Inventory/2017_GHG_Inventory.pdf

[45] "HB 7008: An Act Concerning Enhancements to the State's Environmental Justice Law," *Connecticut House of Representatives Special Session*, October 2, 2020, https://cga.ct.gov/2020/ACT/PA/PDF/2020PA-00006-R00HB-07008SS3-PA.PDF

[46] Weiss, Abby, "Connecticut Passed an Environmental Justice Law 12 Years Ago, but not that Much Has Changed," *Inside Climate News*, July 21, 2020, https://insideclimatenews.org/news/21072020/connecticut-environmental-justice-law/

[47] Citizens Campaign for the Environment, "Memorandum of Support Strengthening Connecticut's Environmental Justice Law," *Citizenscampaign.org*, March, 2019, https://static1.squarespace.com/static/5b72eb5b8ab7222baffc8dbb/t/5cb4cd4708c15800014a08a2/1555352903983/MOS_5395_EJ+Law_032619.pdf

The Upshot: The information above is valuable to GWSA implementation efforts in Vermont despite the fact that Connecticut has a very different population with different needs than the population in Vermont. First, the persisting environmental justice problems in the state provide a cautionary example of what happens when enough attention and effort is not given to the implementation of a very well-intentioned policy. On the other hand, the state's efforts to incorporate environmental justice into policy and increase public awareness and equitable participation can serve as an example of how to incorporate climate equity into policy implementation. Representative Reyes's particular attention to bringing community voices to the table and ensuring environmental benefits for EJ communities is an important effort to note and consider emulating in Vermont policy.

MAINE

Key Policies and Programs

- An Act To Establish the Maine Climate Change Council To Assist Maine To Mitigate, Prepare for and Adapt to Climate Change (2003)
- An Act To Reform Maine's Renewable Portfolio Standard (2019)
- Assessing the Potential Equity Outcomes of Maine's Climate Action Plan: Framework, Analysis and Recommendations (2020)

In 2003, Maine became the first state in New England to establish greenhouse gas reduction targets. In June of 2019, the state passed, "An Act To Establish the Maine Climate Change Council To Assist Maine To Mitigate, Prepare for and Adapt to Climate Change." Governor Janet Mills also signed "An Act To Reform Maine's Renewable Portfolio Standard" in June of 2019. The first act's name leaves no question as to the general purpose of the legislation, but it is lacking in explicitly including or naming equity measures within it. Only mentioned twice in the act, equity does not seem to be a significant goal. One of the two mentions of equity states that the adaptation and resilience strategies "must include implementation guidelines that...encourage diversity, inclusion, and equity."[48] Of the subcommittees present in the established Climate Council, there are no groups strictly focused on energy justice efforts. In addition, the Council's listed strategies on their website do not include any mention of equity or justice.[49]

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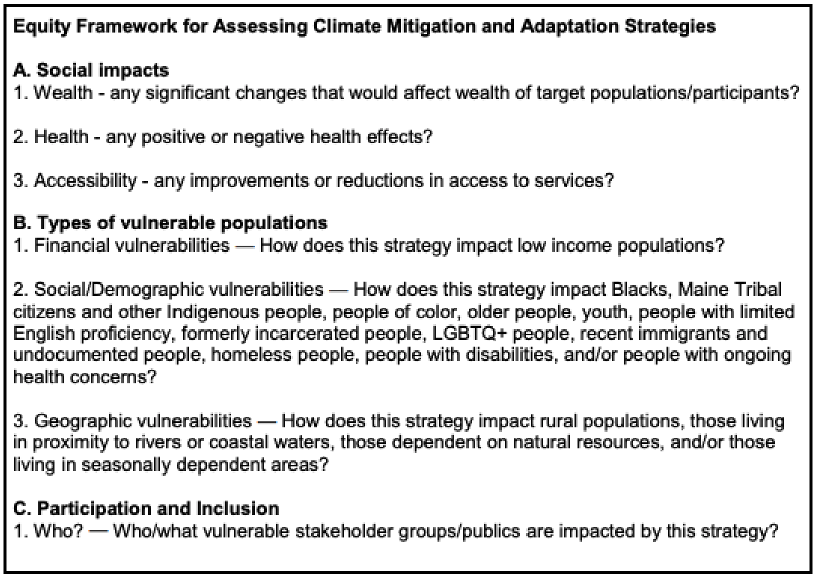
[48] "An Act To Establish the Maine Climate Change Council To Assist Maine To Mitigate, Prepare for and Adapt to Climate Change" (2019), https://legislature.maine.gov/legis/bills/bills_129th/billtexts/SP055001.asp.

[49] "Climate Strategies | Maine Climate Council," accessed November 25, 2020, https://climatecouncil.maine.gov/strategies.

However, in September of 2020, the Climate Council organized an Equity Assessment Team to analyze each of the Climate Council Working Groups through an equity lens and provide recommendations for improvement. This group organized a set of definitions and an equity framework (shown below) for assessing these groups.[50]



Equity Framework for Assessing Climate Mitigation and Adaptation Strategies

A. Social impacts
1. Wealth - any significant changes that would affect wealth of target populations/participants?

2. Health - any positive or negative health effects?

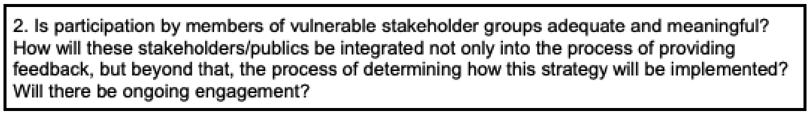
3. Accessibility - any improvements or reductions in access to services?

B. Types of vulnerable populations
1. Financial vulnerabilities — How does this strategy impact low income populations?

2. Social/Demographic vulnerabilities — How does this strategy impact Blacks, Maine Tribal citizens and other Indigenous people, people of color, older people, youth, people with limited English proficiency, formerly incarcerated people, LGBTQ+ people, recent immigrants and undocumented people, homeless people, people with disabilities, and/or people with ongoing health concerns?

3. Geographic vulnerabilities — How does this strategy impact rural populations, those living in proximity to rivers or coastal waters, those dependent on natural resources, and/or those living in seasonally dependent areas?

C. Participation and Inclusion
1. Who? — Who/what vulnerable stakeholder groups/publics are impacted by this strategy?



2. Is participation by members of vulnerable stakeholder groups adequate and meaningful? How will these stakeholders/publics be integrated not only into the process of providing feedback, but beyond that, the process of determining how this strategy will be implemented? Will there be ongoing engagement?

This framework provides a useful set of questions that can be a point of reference throughout the creation of all climate policies. The authors of this report go through all policy recommendations created by the Climate Council and answer these sets of questions in order to determine the equity implications.

It is mentioned throughout the report that many policies, such as alternative energy financing options, EV subsidies, or strict renewable portfolio standards, have the potential to disproportionately burden or ignore low-income populations unless there is explicit attention paid to potential effects on those groups.

While an equity framework is a highly useful tool, there must still be consideration made regarding *who* is asking and answering these questions. If the people participating in this exercise are all of the same background, they will likely have similar assessments. Therefore, there must be collaboration with diverse community stakeholders when answering these questions.

The Upshot: The commissioned report on equity outcomes of the Maine Climate Action Plan serves as a great guide for the types of questions that need to be asked when implementing equitable climate policy. The key to doing this effectively is to enable a diverse group of stakeholders to use this equity framework to assess the equity implementations of proposed policies.

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[50] Dr. Linda Silka, Sara Kelemen, and Dr. David Hart, "Assessing the Potential Equity Outcomes of Maine's Climate Action Plan: Framework, Analysis and Recommendations" (The University of Maine Senator George J. Mitchell Center for Sustainability Solutions, September 2020), https://www.maine.gov/future/sites/maine.gov.future/files/inline-files/MCC_EquityAssessmentReport_201007.pdf.

MASSACHUSETTS

Key Policies and Programs

- GWSA (2008)
- Clean Energy and Climate Plan (2015 update to GWSA) and 80 x 50 Study
- Environmental Justice Policy (2017)
- Roadmap to 2050 (proposed)
- Environmental Justice Strategy and Public Involvement Plan (in development)
- Climate Policy Commission (proposed)
- Director of Environmental Justice in EEA
- Implementation Advisory Committee
- Climate Justice Working Group

Massachusetts, like Vermont, is a member of the Regional Greenhouse Gas Initiative and the proposed Transportation and Climate Initiative. Although Massachusetts was, in 2008, one of the first states to pass a Global Warming Solutions Act (GWSA), action was rather slow to follow. The GWSA Implementation Advisory Committee (IAC) was not convened until May of 2012 by former Secretary of Energy and Environmental Affairs, Rick Sullivan. The IAC meets publicly once per month and has meeting agendas available online up until November 2019.[51] The IAC approved the creation of an Equity Working Group in November 2019. This group, since renamed as the Climate Justice Working Group (CJWG), "seeks to establish safeguards with the GWSA to allow for greenhouse gas reductions and the implementation of strategies that explicitly benefit environmental justice populations and redress longstanding burdens in historically marginalized communities."[52] In February of 2020, the group released a memorandum addressed to the IAC with their intentions, important definitions to establish, and recommendations for ensuring equity in Massachusetts climate legislation, including a proposed scoring system to assess, quantitatively, the impacts of the Global Warming Solutions Act in the state. The main pieces of state legislation that the CJWG references are the GWSA, the Clean Energy and Climate Plan, which is the Executive Office of Energy and Environmental Affairs (EEA)'s 2015 update to a plan for the implementation of the 2008 GWSA.[53] The EEA also began the 80x50 Study in 2019, which has the primary goal of figuring out cost-effective and equitable strategies for accomplishing the Clean Energy and Climate Plan.[54] The study is assessing ways to reduce Massachusetts greenhouse gas (GHG) emissions by 80% or more by 2050 through testing scenarios where changes are made in buildings, transportation, electricity, land use, and non-energy sectors that produce GHG emissions. The proposed Roadmap to 2050 bill currently in committee negotiations in the state legislature provides a detailed plan for how legislators would like to see the state achieve 100% clean energy and address equity issues in state planning to do so.[55] The plan has been welcomed by business owners and would strengthen the state GWSA by confirming a net-zero goal for carbon emissions by 2050 and establishing stricter benchmarks for the interim.[56]

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[51] Implementation Advisory Committee, "The Global Warming Solutions Act (GWSA) Public Meetings," *Mass.gov*, Accessed November 20, 2020, https://www.mass.gov/service-details/the-global-warming-solutions-act-gwsa-public-meetings

[52] Implementation Advisory Committee, "Draft Meeting Agenda," *Mass.gov*, Accessed November 22, 2020, https://www.mass.gov/doc/agenda-for-1119-iac-meeting/download

[53] "Clean Energy and Climate Plan for 2020.Pdf," Accessed December 14, 2020, https://www.mass.gov/files/documents/2017/12/06/Clean%20Energy%20and%20Climate%20Plan%20for%202020.pdf.

The CJWG provides important definitions of terms both that are included in pending legislation, such as Environmental Justice and Environmental Justice Populations, and terms that are not yet included in legislative language or that are defined differently in pending legislation, such as Climate Justice, Equity, and Restorative Justice. The group states that they want Massachusetts to have the dual goals of achieving the state 2030 and 2050 GHG emission reductions targets while also benefiting Environmental Justice Populations and other historically marginalized communities through this process. This should be done, the group says, by investing in democratically controlled structures, prioritizing communities of color and low-income communities, favoring policy scenarios that benefit Environmental Justice Populations, encouraging job growth and the opportunities for better jobs in the state with every step, and by investing in public institutions that ensure that low-income residents do not carry a greater burden than middle-income residents of the costs of policy implementation.[57]

The group makes several concrete recommendations to the GWSA Implementation Advisory Committee, such as allocating more than half of the funds spent on the implementation of the Clean Energy and Climate Plan towards efforts benefitting Environmental Justice Communities, additions to the policy framework outcomes, improving the master policy list to have a greater focus on people, reflecting on a justice-focused 10-year review of the GWSA, establishing new definitions and accountability at each step with public hearings and peer review of policy recommendations by stakeholders, and the creation of a scoring system to quantitatively assess the impacts of the GWSA. They propose a drafted scoring system that weights factors to prioritize scenarios that will have climate justice outcomes but write that the scoring system should be further developed by a subcommittee of experts, such as those in Climate Ready Boston. This scoring system, the GJWG writes, would ensure maximum functionality of the GWSA by providing a transparent comparison of its impacts. The group also provides several pages of guiding questions for the IAC to use in the consideration of policy implementations. A full list of their questions centered on system transformation, participation of and benefit to historically marginalized groups, collective ownership, disproportionate burdens, and investment in communities, can be found in their memo here. In addition to these state-level groups, there are many efforts being made at the state and community-level to actually reduce carbon emissions.

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[54] "Massachusetts 80x50 Study Scenario Planning Workshop Participant Briefing Document," November 19, 2019, https://www.mass.gov/files/documents/2019/11/26/11-19-19-Scenari-workshop-briefing-document.pdf

[55] Meschino, Joan, "HB 832: An Act to Create a 2050 Roadmap to a Clean and Thriving Commonwealth," *Massachusetts House of Representatives*, July 22, 2019, https://malegislature.gov/Bills/191/H832

[56] "Businesses welcome passage of Massachusetts' 2050 Roadmap Bill to ratchet up efforts to achieve state's net-zero emissions goal," *Ceres*, August 1, 2020, https://www.ceres.org/news-center/press-releases/businesses-welcome-passage-massachusetts-2050-roadmap-bill-ratchet

[57] Climate Justice Working Group, "Climate Justice Working Group Memorandum," *Mass.gov*, February 24, 2020, https://www.mass.gov/doc/gwsa-iac-climate-justice-working-group-memo/download#:~:text=The%20CJWG's%20goal%20is%20to,and%20other%20historically%20marginalized%20communities

Massachusetts also has an Environmental Justice Policy, which was established in 2017. Despite this law and executive orders from former Governor Deval Patrick regarding its implementation, much improvement is still needed in terms of environmental hazards and related high disease burdens in certain communities in the state, as well as in community participation in policymaking.[58] Within the state EEA there is also a Director of Environmental Justice. Rishi Reddi, who took this office in December 2019, says that her top priorities in office for implementing the state EJ law are to obtain an environmental justice-oriented point of contact in every EEA agency, put together an EJ advisory council, and make a language access plan to increase community awareness and participation.[59] There is an Environmental Justice Strategy and Public Involvement Plan in development, and a Climate Policy Commission (based on the community and expert-oriented format of the state's Health Commission) has been proposed as well.[60] [61]

The Upshot: Massachusetts has a younger, more racially and ethnically diverse, and denser population than Vermont. Most residents live in more urban settings in Massachusetts than Vermont, perhaps making efforts around sustainable transportation and environmental justice community burdens and community participation look slightly different in the two states. Environmental justice issues in Massachusetts are also more focused on divisions regarding race, whereas environmental justice issues in Vermont tend to have more to do with income levels and socioeconomic status. That being said, Vermont's legislature has a lot to learn from Massachusetts's implementation of the Global Warming Solutions Act, which began 12 years earlier and is quite established. The sheer number of positions, committees, and councils both in place and proposed by the state legislature to involve community members and experts alike in decision-making related to the just implementation of policies to help the state reach its ambitious carbon emissions reduction goals should be noted and used as an example by Vermont legislature. The IAC's function in Massachusetts provides a model for the future work of the Vermont Climate Council, and the CJWG's thorough evaluation of Massachusetts's situation through an environmental justice lens and proposed frameworks can be a starting point for the necessary analysis that the Just Transitions Subcommittee will be tasked with in preparation of the GWSA in Vermont.

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[58] Executive Office of Energy and Environmental Affairs "Environmental Justice Policy," *Constitution of the Commonwealth of Massachusetts, Article 97*, 2017, https://www.mass.gov/files/documents/2017/11/29/2017-environmental-justice-policy_0.pdf

[59] Wasser, Miriam, "Q&A With Rishi Reddi, The State's Top Environmental Justice Leader," *WBUR*, July 29, 2020, https://www.wbur.org/earthwhile/2020/07/29/rishi-reddi-environmental-justice-ej

[60] "Environmental Justice," *Mass.gov*, Accessed October 19, 2020, https://www.mass.gov/environmental-justice

[61] Cronin, Tim, "Mass. Senate's Climate BIlls: Overview, Summary, & Context," *Climate XChange*, January 23, 2020, https://climate-xchange.org/2020/01/23/mass-senates-climate-bills-overview-summary-context/

MINNESOTA

Key Policies and Programs

- Next Generation Energy Act (2007)
- Minnesota Pollution Control Agency's Environmental Justice Advisory Group
- Minnesota Department of Transportation's Sustainable Transportation Advisory Council

Minnesota was among the earliest states to embrace clean energy and begin transitioning away from fossil fuel infrastructure.[62] The state has since benefitted from its prompt adoption of renewable energy sources, with the growing clean energy sector boosting local energy independence, strengthening the state economy, and providing thousands of clean jobs.[63] It's only energy efficiency legislation, the Next Generation Energy Act, was passed in 2007, and requires the state to reduce greenhouse emissions by 80%, from 2005 levels, by 2050. Renewables have made up 84% of the state's new energy infrastructure since 2010, and almost half of the state's electricity came from zero-carbon sources in 2019, which made up about a quarter of the state's power consumption, with wind providing 18% of total power in the state.[64] The state also houses the largest solar and storage project in the Midwest.[65] Minnesota ranks eighth out of the 50 states for its energy efficiency and renewable energy programs, and ranks first in the Midwest, according to the American Council for an Energy-Efficient Economy.[66] Like Vermont, Minnesota lacks internal fossil fuel resources and, historically, imported its energy resources from outside the state.[67] Because it does not rely on existing fossil fuel infrastructure and is not locked into current means of energy generation in the way that many other states are, it has more flexibility to transition to renewables.[68] Minnesota is also a more racially diverse state than Vermont, but is less diverse than the United States on average: 80% of Minnesota residents identify as non-Hispanic whites, compared to 94% of Vermonters and 76%

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[62] John Melville, Renae Steichen, and Janine Kaiser, "Minnesota Clean Energy Economy Profile," *Collaborative Economics,* October, 2014, https://mn.gov/commerce-stat/pdfs/mn-clean-energy-econ-full-rpt.pdf

[63] Ibid.

[64] "2020 Minnesota Energy Factsheet," *BloombergNEF*, 2020, https://www.cleanenergyeconomymn.org/2020-minnesota-energy-factsheet.

[65] Ibid.

[66] Melville, "Minnesota Clean Energy."

[67] Ibid.

[68] Ibid.

of Americans nationwide.[69] According to the state's Clean Energy Economy Profile, "Clean energy is reducing Minnesota's dependence on non-renewable sources of energy. For example, only 4 percent of the electricity generated in Minnesota in 2000 came from renewable energy, but by 2011 renewable electricity jumped to 16 percent of total generation."[70] Its energy market is ahead of most other states' markets, with more than 15,000 jobs in the clean energy sector as of 2014 and more than 61,000 jobs in clean energy and energy efficiency by 2019.[71] With the clean energy sector growing more rapidly than other parts of the state's economy, and introducing better-paying jobs than the state average, Minnesota is at a relative advantage compared with other states that are only beginning to develop their clean economies.[72] The growth of clean energy and energy efficiency jobs directly benefits lower-income Minnesota residents, boosting energy equity through both expanded employment and the work being done.

The Minnesota Pollution Control Agency oversees most environmental work in the state. It formed an Environmental Justice Advisory Group in 2016 to aid in incorporating environmental justice into all aspects of its work.[73] Though Minnesota does not have a GWSA or other updated, comprehensive climate policy, it has proven to be a leader, particularly among Midwestern states, in electrifying transportation. The Minnesota Department of Transportation (MnDOT) in 2017 set a goal of reducing emissions from the state's transportation sector by 30%, from 2005 levels, by 2025.[74] These goals were informed by members of its Sustainable Transportation Advisory Council. According to MnDOT, most emissions come from personal vehicles, leading the state to prioritize electrifying light-duty vehicles, like cars, ahead of other means of transportation.[75] The state aims to transition 20% of gas-powered cars to electric cars by 2030, and plans to do so by "Accelerat[ing] EV sales and use through education and other methods, build[ing] out EV charging infrastructure, coordinat[ing] on regional and national initiatives to expand EV charging opportunities, [and] prioritiz[ing] renewable energy to charge EVs," including looking at multi-unit housing charging and workplace charging as part of the initiative in an effort to ensure an equitable transition away from gas-powered vehicles.[76] The state does not yet provide incentives for the purchase of electric vehicles,[77] but in October, it introduced millions of dollars in grants for the funding of up to 38 charging stations, with the money coming from part of a $47 million settlement with Volkswagen.[78] Further funding is an obstacle the state has not yet been able to address, particularly in the absence of updated climate policy that allocates funding for development of electric vehicle infrastructure and incentive programs.

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[69] Minnesota State Demographic Center, "Age, Race, & Ethnicity," *Minnesota Department of Administration*, 2018, https://mn.gov/admin/demography/data-by-topic/age-race-ethnicity/.

[70] Melville, "Minnesota Clean Energy."

[71] Ibid.

[72] "2020 Minnesota Energy Factsheet."

[73] Mary Connor, "MPCA Seeks New Community Members for Environmental Justice Advisory Group," *Minnesota Pollution Control Agency*, July 2, 2019, https://www.pca.state.mn.us/news/mpca-seeks-new-community-members-environmental-justice-advisory-group.

[74] "Electric Vehicles," *Minnesota Department of Transportation*, 2020.

[75] Ibid.

[76] Fran Crotty et al, "Accelerating Electric Vehicle Adoption: A Vision for Minnesota," *Minnesota Department of Transportation, Minnesota Pollution Control Agency, and the Great Plains Institute*, 2019, http://www.dot.state.mn.us/sustainability/docs/mn-ev-vision.pdf.

[77] Ibid.

The Upshot: While Minnesota lacks a comprehensive energy policy that suits its present-day needs, it is a Midwestern leader in clean energy, particularly in the transportation sector. It has done a great deal of clean energy infrastructure development, but limited energy equity work, with equity-focused programs not prioritized as highly as those focused on the expansion of renewables and furthering energy independence within the state. Jobs in Minnesota's growing clean energy sector have benefitted marginalized residents more significantly than other groups, and the reduced pollution from electric vehicles and renewable energy generation will have a disproportionately positive impact on the state's poorer communities. Despite the limitations of its energy policies, Minnesota's strengths can inform Vermont's equity work moving forward.

NEW YORK

Key Policies and Programs

- Climate Leadership and Community Protection Act (2019)
- Commissioner's Policy 29 (EJ and Permitting)
- Environmental Justice Grants Program
- Operation ECO Quality
- Indian Nation Consultation Program
- Green Infrastructure Program
- Climate Action Council
- Climate Justice Working Group
- Office of Environmental Justice within DEC

New York, like its neighboring states, is also a member of RGGI and the TCI. The state does not have its own GWSA, though, and was later than those above to establish emissions reductions targets. New York state legislature finally did so in 2019 with the Climate Leadership and Community Protection Act. The act set forward bold goals for the state, including net-zero greenhouse gas emissions by 2050 and having 100% zero-emission electricity by 2040.[79] The act also establishes mandatory reporting of greenhouse gases and defines the state's Climate Action Council and Climate Justice Working Group.[80] The state legislature made a particular effort to stand up the state's CJWG with representatives from Environmental Justice communities. The group consists of three members from communities in New York City, three from rural communities, and three from urban communities in upstate New York, as well as representatives from state departments. Part of the Climate Act promised that disadvantaged communities would reap at least 35%, with a goal of 40%, of the benefits of spending on clean energy and energy efficiency programs, as well as projects or investments in housing, workforce development, pollution reduction, energy, transportation, and economic development. The Climate Justice Working Group works to ensure that this pretty wide-reaching commitment is upheld.[81] This focus on the empowerment of every New Yorker extends to many other efforts on behalf of the Department of Environmental Conservation (DEC). Commissioner's Policy 29, which guides the incorporation of EJ concerns into the DEC environmental permit review process, and various other programs combine to make the New York state government very environmental justice-oriented.

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[78] Jennifer Bjorhus, "State offers $2.6 million to build out Minnesota network for charging electric vehicles," *Star Tribune*, October 2, 2020, https://www.startribune.com/state-offers-2-6-million-to-build-out-minnesota-network-for-charging-electric-vehicles/572617662/

[79] "S 6599," *New York State Senate*, June 18, 2019, https://legislation.nysenate.gov/pdf/bills/2019/S6599

[80] "Climate Action Council," *Climate.NY.gov*, Accessed October 10, 2020, https://climate.ny.gov/Climate-Action-Council

The Office of Environmental Justice (OEJ) within the NY DEC is robust in programs as well as communication with the public. Seasonal and yearly Environmental Justice reports inform residents of initiatives relevant to their community, and press releases are clear and accessible. The OEJ website also clearly instructs those looking for help on which hotlines to call and resources they can access.[82] The OEJ office Environmental Justice Program Grants, which provide up to $50,000 for community-based organizations to do research or provide education.[83] The Operation ECO Quality initiative works to bridge the gap between the DEC and communities to address pollution reduction needs, helping environmental justice communities while reducing pollution.[84] The Indian Nation Consultation program is guided by Commissioner's Policy 42, which states that "Department staff shall consult with appropriate Indian Nation representatives on a government-to-government basis regarding matters affecting Indian Nation interests."[85] The program works to seek the consultation of indigenous people, particularly the nine state recognized nations, on issues regarding natural, cultural, and subsistence resources. The Green Infrastructure program is another effort on behalf of the DEC that works to benefit communities through sustainability work that furthers the state's environmental goals. Green infrastructure uses natural resources like soil and vegetation to restore areas and facilitate stormwater drainage, using natural processes to manage water and air quality, protect habitats, and protect communities from flooding. This practice is cost-effective and helps community resilience in the long-term while making them more beautiful in the short-term.[86] Another important DEC effort in environmental justice is the use of Geographic Information Systems to map environmental justice issues in the state, making it easier to address said issues.[87]

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[81] "Climate Justice Working Group," *Climate.NY.gov*, Accessed October 11, 2020, https://climate.ny.gov/Climate-Justice-Working-Group

[82] Office of Environmental Justice, "Environmental Justice," *DEC.NY.gov*, Accessed October 15, 2020, https://www.dec.ny.gov/public/333.html

[83] Office of Environmental Justice, "Environmental Justice Grant Programs," *DEC.NY.gov*, Accessed October 15, 2020, https://www.dec.ny.gov/public/31226.html

[84] Office of Environmental Justice, "Operation ECO Quality," *DEC.NY.gov*, Accessed October 15, 2020, https://www.dec.ny.gov/public/65832.html

[85] Office of Environmental Justice, "Indian Nation Consultation," *DEC.NY.gov*, Accessed October 15, 2020, https://www.dec.ny.gov/public/974.html

______The Upshot: New York's efforts on climate and environmental justice are robust, thorough, and more comprehensive than any other state in the Northeast. The government's incorporation of Environmental Justice into the Department of Conservation and commitment to implementing programs that focus on community access and benefit is exemplary. Although New York has a younger and more diverse population than Vermont, the implementation of these programs in the more rural parts of New York can serve as an example for Vermont's GWSA implementation efforts. The various programs run by the DEC to incorporate green infrastructure, indigenous voices, and community education are very relevant to Vermont.

OREGON

Key Policies and Programs

- House Bill 3545 on Greenhouse Gas Emissions
- Senate Bill 1530
- Executive Order 20-04 (Duties of Task Force and other Agencies).
- Oregon Climate Action Plan

In 2003, when Oregon's Governor, Ted Kulongoski, joined the governors of Washington and California to form the West Coast Global Warming Initiative, the state had already posited many options for greenhouse gas reductions.[88] In 2007, Oregon was among the first states to join the Western Climate Initiative, along with Arizona, New Mexico, California, and Washington, before all states but California left due to financial concerns.[89] Oregon's Senate Bill 1530 posed in Section 95b that "the Housing and Community Services Department, in consultation with the Office of Greenhouse Gas Regulation, the Oregon Housing Stability Council and interested stakeholders, shall develop a proposal for assisting households that for residential home heating use fuels that are not natural gas." This proposal is to "give priority to assisting low- and moderate-income households or impacted communities, as designated by the Oregon Greenhouse Gas Reduction Board under section 103." There, "low-income" and "impacted" communities are listed as those in rural communities, coastal communities, areas with above-average concentrations of low-income households, historically disadvantaged households, high unemployment, high linguistic isolation, low levels of homeownership, high rent burden, sensitive populations, and/or residents with low levels of educational attainment. The fact that "low-income" and "impacted" communities are defined by more categories than Vermont's GWSA indicates a more granular definition and understanding of those groups. Additionally, as with Washington's Environmental Disparities analysis, communities with high vulnerability to the impacts of environmental pollution are factored into the determination of "impacted communities," which is mandated to be reassessed by these offices and councils every five years. A consistent reassessment of the terminology used to distinguish those in need of assistance of energy efficiency programs stands to offer an up-to-date approach to furthering energy equity.

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[86] Office of Environmental Justice, "Green Infrastructure," *DEC.NY.gov*, Accessed October 15, 2020, https://www.dec.ny.gov/public/915.html

[87] Office of Environmental Justice, "Maps & Geospatial Information System (GIS) Tools for Environmental Justice," *DEC.NY.gov*, Accessed October 15, 2020, https://www.dec.ny.gov/public/911.html

[88] "History of Carbon Pricing in Oregon," *Renew Oregon*, 2018. https://www.reneworegon.org/history_of_carbon_pricing_in_oregon

[89] Ibid.

Most recently, in March of 2020, Governor Kate Brown signed Executive Order 20-04, which directed industry emitters, per past legislation, to cap and reduce greenhouse gasses to 45% below 1990 emissions levels by 2035, and at least 80% below 1990 emissions levels by 2050. This order directs the Oregon Health Authority to deliver a report to the Governor, the Oregon Global Warming Commission, and the Environmental Justice Task Force on the public health impacts of climate change in Oregon, with particular emphasis on the risks faced by vulnerable communities, including Oregon's nine federally recognized Native American tribes, communities of color, low income communities, and rural communities. This is to be an annual report, allowing for consistent quantitative analysis of the impacts of climate change on these communities generated through feedback from the Environmental Justice Task Force.

EO 20-04 falls short of generating any legislation to invest the funds obtained through the state's mandated cap-and-reduce program in underprivileged communities, but it does highlight the role the state's Environmental Justice Task Force can play in a just decarbonization process. The Environmental Justice Task Force was established by ORS 182.538, and its duties are delineated in ORS 182.542, as follows:

1. Advise the Governor on environmental justice issues
2. Advise natural resource agencies on environmental justice issues, including community concerns and public participation processes;
3. Identify, in cooperation with natural resource agencies, minority and low-income communities that may be affected by environmental decisions made by the agencies;
4. Meet with environmental justice communities and make recommendations to the Governor regarding concerns raised by these communities; and
5. Define environmental justice issues in the state. [2007 c.909 §3][90]

Members of this group have laid out a comprehensive Equity Blueprint with the assistance of environmental consulting groups, offering best practices for future policies, guiding questions, and program case studies in the realms of Metro Transportation and Housing and Community Services.[91]

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[90] Oregon Laws, "ORS 182.58: Environmental Justice Task Force," *Oregon State Legislature*, 2019 Edition. https://www.oregonlaws.org/ors/182.542

The Upshot: Research by Environmental Justice Vermont's R.E.J.O.I.C.E. project has shown that Vermont is one of eight states in the country that lacks a statewide environmental justice policy.[92] Vermont's GWSA does not change this fact, indicating a need for policies that define, advise, and act on environmental justice issues, like those listed above. While it may not be directly analogous to Vermont's Just Transitions Subcommittee, Oregon's Environmental Justice Task Force is tasked with ensuring that the Governor's goals for carbon reduction requirements do not disproportionately impact highly impacted communities. In terms of specific policy outcomes to learn from, Oregon's House Bill 3545 designates "impacted communities" using a wider definition than just income and energy burden, also looking at rent burden, educational attainment, linguistic isolation, and other variables to determine vulnerability and assess equity.

RHODE ISLAND

Key Policies and Programs

- Resilient Rhode Island Act (2014)
- Global Warming Solutions Act (in committee)
- Providence Climate Justice Plan
- Climate Change Coordinating Council
- Providence Racial and Environmental Justice Committee

Rhode Island, like Vermont, is a member of the Regional Greenhouse Gas Initiative and the proposed Transportation and Climate Initiative. Although Rhode Island's Global Warming Solutions Act is back in committee after failing to pass, the state passed the Resilient Rhode Island Act in 2014. This act established the Climate Change Coordinating Council and mandatory reduction targets. Importantly, the act did not establish mandatory reporting for emissions reductions, which makes it more difficult to meaningfully implement. The only information about Environmental Justice on the Rhode Island state website regards only hazardous waste and contaminated properties under the jurisdiction of the Department of Environmental Management.[93] This site does provide a useful mapping tool to see where Environmental Justice areas are in the state, which is important but only a small piece of the effort that should be going on at a state-wide level to combat environmental injustices and also reduce carbon emissions. Because its current targets are not enforceable, Rhode Island has not done well with working towards emission reductions. The state is small but faces environmental issues just like any other, especially in terms of the threat of flooding from climate change.[94]

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[91] Estolano Advisors and Better World Group, "State of Oregon Climate Equity Blueprint," *Oregon.gov*, October 2020.

[92] Environmental Justice Vermont. N.D., "The R.E.J.O.I.C.E. project," Accessed via https://environmentaljusticevt.org/.

[93] "Environmental Justice,"*DEM Rhode Island*, Accessed 11 December, 2020, http://www.dem.ri.gov/programs/wastemanagement/site-remediation/environmental-justice.php

The city of Providence has done much better than the state in terms of acting on climate efforts and working towards environmental justice. Mayor Elorza led the creation of the city's Climate Justice Plan and a Racial and Environmental Justice Committee in recent years. The city government's focus on bringing an equity lens to sustainability work and involving communities in environmental decision-making is far stronger than that of the state government. The city's Director of Sustainability has worked with the mayor to present information to communities on the climate crisis and impactful information like asthma and elevated blood level rates. Their efforts recently have focused on energy reporting for large buildings, community choice, and the creation of "Green Justice Zones."[95] These zones were included in the city's Climate Justice Plan and delineate two communities where the city's government aims to achieve health equity and climate resilience while improving quality of life for residents and hearing their voices more.[96] The Climate Justice Plan establishes an "equitable process for equitable outcomes" using the Just Providence Framework, which was established by members of frontline communities in Providence and then implemented by the Office of Sustainability and the Racial and Environmental Justice Committee. This process is community-centered and focuses on education and training in energy democracy, peer-led interviews of frontline community members, and policy solutions based on community members' concerns and priorities.[97]

The Upshot: We did not include policies specific to certain cities in the reviews of efforts in any other states in the Northeast, but the efforts in Providence were so much stronger than the rest of the state that we chose to do so with Rhode Island. The resources linked in our citations above regarding these programs in Providence should be explored by anyone looking to improve equitable participation in environmental justice communities. Despite the strong efforts in Providence, though, Rhode Island's failure at a state level to address climate change and environmental justice demonstrates the dangers of not implementing emissions reductions or any other ambitious climate goals.

WASHINGTON

Key Policies and Programs

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[94] Moses, Amy, "Rhode Island Lags Behind Neighbors on Climate," *Conservation Law Foundation*, May 1, 2019, https://www.clf.org/blog/rhode-island-lags-on-climate/

[95] Elorza, J. and Leah Bamberger, "Climate Justice Plan," *SustainPVD*, Accessed November 23, 2020, http://climatechange.ri.gov/documents/ec4-0620-pres-pvd-climate-justice-plan.pdf

[96] Kelly, Grace, "Creation of Providence's Green Justice Zones Underway," *Eco RI News,* February 14, 2020, https://www.ecori.org/social-justice-archive/2020/2/14/creation-of-providences-green-justice-zones-underway

[97] "The City of Providence's Climate Justice Plan," *SustainPVD*, Accessed November 24, 2020, ttps://www.providenceri.gov/wp-content/uploads/2019/10/Climate-Justice-Plan-Report-FINAL-English.pdf

- House Bill 2815
- Senate Bill 5981
- Environmental Disparities Analysis

Washington's introduction of energy equity issues into carbon reduction policies is as nascent as Vermont's. After the 2008 legislature established statewide emissions limits to be achieved by 2020, 2035, and 2050 across sectors, a Senate Bill was deemed necessary to ensure that the reductions listed could be accomplished and regulated.[98] Senate Bill 5981, first introduced in March of 2019, creates a framework for utilities to auction and trade greenhouse gas emissions allowances.[99] Section 24 of this bill delineates the energy transition's mandatory assistance to low-income households:[100]

> "Funding must be prioritized to mitigate for the additional energy and transportation costs borne by low-income persons as a result of this chapter and other policies and programs that reduce fossil fuels in the state's energy fuel mix. Funding must also be prioritized to provide assistance to displaced fossil fuel-related industries' workers as provided under section 26 of this act. Remaining funds must be used to reduce carbon pollution and reduce vulnerable population characteristics. Or environmental burdens in highly impacted communities designated by the Department of Health."[101]

In crafting just and equitable energy policy, it is important to note the manner in which each state defines and categorizes burdened individuals. In Washington's case, "low-income households" and "highly impacted communities" act as proxy classifiers for burdened individuals.[102] The following section of SB5981 outlines the procedure for the mandatory identification of "highly impacted communities," which is to be carried out through a mapping exercise that ranks and designates vulnerable communities in Washington, including Indian tribes, building upon the Environmental Disparities Analysis prepared by the University of Washington Department of Environmental and Occupational Health Sciences in coordination with the State Department of Health.[103] This mandated study highlighted the differences in the burden of toxic releases that result from carbon-intensive industry practices through direct engagement with the most burdened communities in the state to determine the most important variables to analyze regarding environmental health risks. It also utilized the existing pool of knowledge present in academia to provide a quantitative analysis of the inequitable treatment (due to past climate policy) of people across the state. The only racial demographic analysis that took place in this exercise was the assessment of Native American tribal land, which was deemed more highly impacted.[104] A mapping process that is integrated and engaged with the people categorized in policies shows much potential regarding the involvement of "highly impacted communities" in crafting an equitable future for their communities.

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[98] "Senate Bill 5981," *Washington State Legislature,* 2020, 1, https://app.leg.wa.gov/billsummary?BillNumber=5981&Initiative=false&Year=2019

[99] Ibid.

[100] Ibid. 30-32.

[101] Ibid. 30-31.

[102] Ibid, 32.

[103] Ibid.

The Upshot: Washington's efforts to generate quantitative metrics for *environmental justice* demonstrate that interdepartmental mapping of and engagement with highly impacted communities can be mandated by state legislature. Vermont's GWSA mandates that the Secretary of State shall conduct public hearings across the state concerning proposed initiatives, programs, and strategies to achieve the 2025 emissions reduction requirements of Section 578, in "disadvantaged, low-income, and rural communities and areas."[105] Additionally, the Act charges the Just Transitions Subcommittee with ensuring these programs, incentives, and strategies "benefit and support all residents of the State fairly and equitably," considering "the disproportionate impact of climate change on rural, low income, and marginalized communities." This house bill lacks an explicit definition (or reference to a definition) for these categorizations of communities, which may result in a biased implementation.

"This subcommittee may adopt a measurement tool to assess the equitability of programs and strategies considered by the Council."[106] The term "may" does not *mandate* or *require* a quantitative measurement tool to be adopted by the Vermont Climate Council, as was required in Washington's case. A future senate bill could potentially outline a mandatory and state-funded community-engaged procedure for geographically defining and identifying the communities determined to be "rural," "low-income," or "marginalized," as Washington's SB-5981 proved possible.

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[104] "Washington Environmental Health Disparities Map," *University of Washington Department of Environmental & Occupational Health Sciences*, 2019, https://deohs.washington.edu/sites/default/files/images/Washington_Environmental_Health_Disparities_Map.pdf

[105] "Bill Status H.688 (Act 153)," 1, accessed November 23, 2020, https://legislature.vermont.gov/bill/status/2020/H.688.

[106] Ibid, 30.

V. Summary Evaluation of State Policies

The state policies highlighted above show a number of contextual approaches to evaluating environmental justice issues and generating metrics for energy equity. No state studied is a perfect example of an equitable energy system or a just transition to a decarbonized economy, but the key policies that analyzed in each state demonstrate certain methods of evaluating and assessing equity through a quantitative and qualitative lens.

For example, California's mandatory barrier study per AB-32 drew attention to issues regarding access to the adoption of efficiency programs in the state through a community-engaged survey sent to utilities. This policy could be adapted to Vermont's case by simply asking what barriers to adoption are at play in Vermont's energy efficiency program system, economically and beyond. Any policy that regards quantifying and addressing *barriers* to the adoption of energy efficiency or renewable energy programs offers a precedent for the first steps in generating equity metrics.

Washington State's Environmental Health Disparities Map provides a metric for assessing the environmental impacts of climate, proving that an interdepartmental collaboration using data gathered by academia can be an effective way of quantitatively determining communities most impacted by the burdens of climate change, to ensure that the benefits of decarbonization can be conferred to those who need them most.[107] Policies that apply the knowledge base of academia tend to offer a more community-engaged process of assessing equity in the implementation of decarbonization programs.

Further, as mentioned in the case of a number of states, Vermont lags behind in the adoption of an environmental justice advisory committee, so a substantial commitment from the Just Transitions subcommittee will be necessary to ensure that the voices of marginalized individuals and BIPOC communities are heard, until further legislation establishes a BIPOC-centered, environmental justice-oriented policy advisory committee.

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[107] *University of Washington Department of Environmental & Occupational Health Sciences*.

VI. Current Efforts in Vermont to Implement Equitable Environmental Policy

While energy burdens are high in Vermont, the existing framework for increasing equity in the energy system offers certain programs that have at least approached the issues discussed. Efficiency Vermont's Energy Burden Report involves a comprehensive mapping of burden in Vermont's towns, drawing attention to issues of economic inequity in rural areas through a combination of modeling, usage data, and survey data to estimate energy spending and burden in each of Vermont's towns. This study demonstrates, geographically, which areas are most in need of outreach from efficiency programs, offering a metric for the study of *economic* equity policy.[108] The Energy Action Network's monthly *Total Energy News* offers comprehensive data downloads on emissions breakdowns and further resources on economic equity policy to inform policymakers on the economic implications of an energy transition.[109] However, while economic and racial equity are closely tied together, one should not be perceived as a proxy for the other, as policies that decrease energy burdens do not make up a catch-all solution to a just transition.

Policy pitches given to the Energy Action Network at their summit in October of 2020 proposed innovative means of rethinking a transition to a decarbonized economy through both racial and economic lenses. In a pitch entitled, "Mapping Diversity, Equity, and Inclusion in Vermont's Energy Sector; and Public Sector Spending on Climate Change," Kelly Lucci from Efficiency Vermont and Dan Quinlan from SolaVida noted that demographic factors such as race, age, gender, and homeownership status impact participation in energy efficiency programs, and that a policy that mandates a community-driven study to generate metrics for equity beyond solely economic factors would lead to a more equitable distribution of benefits from a transition to a decarbonized energy system.[110]

Additionally, Former Bennington Representative Kiah Morris from Rights and Democracy Vermont recommended the establishment of a policy advisory entity that is representative of the impacted communities, which could be determined by a mapping exercise like that devised by Lucci and Quinlan.[111] As mentioned above, findings in other states indicate the important role a state Environmental Justice Advisory Committee can have on informing governors and legislators of the impacts their decisions have on those most burdened by the energy system as it stands. Currently, Vermont lacks both an equity metric and environmental justice goals, yet these proposals offer a hopeful framework for the just implementation of the GWSA.

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[108] Sears, Justine, and Lucci, Kelly, "2019 Energy Burden Report," 4, https://www.efficiencyvermont.com/news-blog/whitepapers/vermont-energy-burden

[109] Energy Action Network, "Total Energy News," November, 2020, https://www.eanvt.org/total-energy-news/total-energy-news-november-2020/

[110] Energy Action Network, "Total Energy Pitches," October 1, 2020, https://www.eanvt.org/2020-ean-summit/total-energy-pitches/

[111] Ibid.

VII. Criteria for our Policy Recommendations

Our recommendations for the just implementation of the GWSA are informed by existing policies and programs throughout the states researched in this report and are grouped into four categories. These categories are not listed in order of importance. First, we recommend promoting the inclusion of, and educational opportunities for, marginalized communities. In this category, we emphasize the importance of listening to the lived experiences of those most heavily impacted by the climate and energy affordability crisis to generate policies that take their feedback into account. Further, the development of clean energy jobs could benefit those currently unemployed and suffering high energy burdens, while increasing opportunities for those displaced from outdated jobs of an extractive fossil fuel economy.

The second category of policy recommendations addresses needs for equitable changes to the transportation sector, which makes up the largest percentage of Vermont's carbon emissions. Electrifying public transit and expanding its accessibility could offer those bearing the highest energy burdens an effective means of getting to school and work without spending a large percentage of their income on gas.

The third category of our policy recommendations addresses the state's need to transition communities to renewable power, and proposes community solar grids to minimize dependence on the fossil fuel-based resources and grid infrastructure of other states.

The fourth and final category of our recommendations focuses on the need for Vermont to improve upon home and large-scale weatherization and energy efficiency, in order to better the state's built environment and build healthy and welcoming communities in the areas currently experiencing the highest energy burden.

It is important to note when considering these policy recommendations that they are intended to offer a framework for specific programs. They are not specific policies we recommend for immediate implementation. Further study is needed to gather input from the communities most impacted by the current energy system to determine an equitable geographic distribution and implementation of specific programs and policies. Community feedback, particularly from low-income and BIPOC Vermonters, should be a priority in the development of any future policy.

VII. Policy Recommendations

1. **Bring BIPOC, low-income and other marginalized groups to the table**
   a. Meaningful change cannot be implemented without enabling underrepresented groups to participate in the process. These communities often have the lived experiences to ensure that policies are effective and fit the needs of the people whom they impact directly.
   b. There must be removal of barriers to participate in policy-making, whether this means compensation, meals, child-care, technology provision, or some other need. Underrepresented groups did not build the systemic challenges they face, so they should not be asked to give up more of their time or resources to fix those problems. Rather, they need to be presented with the appropriate resources and support, without institutional tokenization, to promote engagement with these policies and lead to greater and more equitable community-based decision making.
   c. Within the energy sector, especially in regard to policy making, quality, intersectional education on energy inequity as it relates to BIPOC, low-income and other marginalized groups must be established and standardized. In order for reparations and effective change to be made in reducing energy inequity, it is imperative that those in historically privileged positions understand, fully, why centering the voices of and bringing these communities to the table is a fundamental factor in implementing a just transition.
2. **Create a metric to track and evaluate energy equity and set goals within this framework**
   a. Metrics of equity need to be created and standardized in order to set measurable goals and standards. This could incorporate demographic statistics and various measures of equity including energy burden, availability and use of energy incentives, access to clean transportation, etc.
   b. The GWSA sets requirements for emissions but not for justice. As such, there need to be policy measures that ensure the mention of justice is not simply performative, but is an actionable goal.
3. **Lower-cost, widely accessible public electric transit**
   a. Free or heavily subsidized public electric transit has the potential to increase access while decreasing Vermonters' carbon footprints, particularly in rural locations.
   b. Public transit reduces dependency on cars and other personal vehicles, not only lowering emissions but providing more flexibility to the low-income Vermonters in rural locations whose mobility is most limited by existing transportation networks, including migrant farmworkers.
4. **Expanded access to electric vehicles and electric vehicle charging stations**

  a. Substantially greater subsidies for new and used electric vehicles, as well as an expanded, free, reliable grid for EV charging stations, will enable Vermonters to transition away from gas-powered vehicles.
     i. This will benefit all residents, but will have an especially large impact on lower-income Vermonters who rely on their vehicles for transportation or work and are relatively inflexible in their demand for fuel for their vehicles.
     ii. There should be a focus on charging station installations at apartment complexes, workplaces, and other accessible sites.
  b. Subsidies for homes with increased energy bills from in-home EV charging stations will help offset the costs of electrification and increase the visibility of savings.
  c. Vehicle efficiency price adjustment and trade-in programs will incentivize the purchase of electric cars across income levels.

5. **Community solar programs to support development of a fully renewable electric grid**
   a. Unlike residential solar, which is often unavailable to renters, community solar programs will benefit low-income communities.
   b. As transportation and heating begin to be powered by electricity, it is paramount that the electric grid draw energy from renewables rather than from nonrenewable sources.
      i. This will require further expansion of renewables, rather than relying so heavily on electricity from Hydro Quebec.
6. **A greater focus on workforce development and more well-paying jobs in clean energy**
   a. Emphasis should be placed on growing the clean energy employment sector, given that clean energy jobs not only accelerate the energy transition but also tend to pay better than the state's average income.
   b. The introduction of more jobs will boost the state economy and afford more opportunities to lower-income Vermonters while enabling clean energy and energy efficiency programs to expand due to the greater availability of workers.
7. **Education around energy efficiency and existing programs and resources**
   a. There must be expanded and accessible education connected to energy efficiency and the resources already available to Vermonters, with particular attention paid to BIPOC and low-income communities, who have historically been left out of much of this work.
8. **More heavily subsidized weatherization programs with support for renters and incentives for landlords to weatherize**

   a. Landlords often lack incentives to weatherize when renters are responsible for paying electricity bills, locking many of Vermont's lowest-income residents into paying some of its highest energy costs.
   b. Improving weatherization programs for renters and making the programs more accessible to low-income homeowners will reduce both the share of their income spent on energy and their household greenhouse gas emissions.

9. **Subsidies for home energy efficiency**
   a. Weatherization and other efficiency measures, like air source heat pump and heat recovery ventilator installation, should be completed across the socioeconomic spectrum.
   b. All Vermonters should be incentivized to make their homes as efficient as possible, lessening costs and emissions.
10. **Improved and expanded zoning and building codes**
   a. Local policies should encourage residents to construct sustainable homes and buildings, and new multifamily housing developers should be both required and incentivized to adopt high-performance building standards and incorporate passive or high-efficiency electric technologies, as well as including a high percentage of affordable housing units when building new housing developments.
   b. High-density, low-cost housing should be prioritized in town master plans, combating NIMBYism to make Vermont's built environment welcome to all.

IX. Financing Implementation Efforts: How to Pay

One of the biggest hurdles to climate policy is financing. The common question is, "How are we going to pay for that?" The answer is that we already are. Incorporating the negative externalities of climate change makes it apparent that while the up-front costs of polluting are low, the lasting impacts are not so cheap. We will continue to pay for the costs of climate change far into the future.

For now, however, because markets do not intrinsically account for these externalities, there will need to be financing mechanisms to pay for these programs. While this was not the focus of our research, we list below some potential resources that are deserving of continued research. Vermont Energy Action Network was particularly helpful in the formulation of these options.[112]

1. Carbon Tax
    a. A tax on fossil fuel emissions
    b. Would require special attention towards potential disproportionate costs for low-income and marginalized groups
2. Progressive Taxation
    a. Increased taxation on the wealthiest Vermonters
    b. Revenue could be put towards equitable climate programs
3. Cap and Invest
    a. Set an emissions cap, or allowance. Allowances must be purchased and the revenue can be put towards low-income Vermonters
4. Clean Heat Standard
    a. Similar to a renewable portfolio standard, a clean heat standard would require heating services to reduce emissions[113]
5. Pay As You Save
    a. Utilities, municipalities or federal grants pay upfront costs of energy efficiency or renewable energy improvements. Customers pay back the costs as they save money with the upgrade[114]
6. Feebate
    a. Fees for low emitting vehicles and rebates for high emitting vehicles
    b. Would require special attention towards potential disproportionate costs for low-income and marginalized groups

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[112] "Thermal Pitches," *Energy Action Network* (blog), October 6, 2020, https://www.eanvt.org/2020-ean-summit/thermal-pitches/.

[113] Rich Cowart, "Creating the Vermont Clean Heat Standard" (Energy Action Network, 2020), https://www.eanvt.org/wp-content/uploads/2020/10/Creating-the-Vermont-Clean-Heat-Standard-1.pdf.

[114] Ludy Biddle et al., "Invest in Vermonters: A Plan to Save Money & Improve Health for Low and Middle Income Households" (Energy Action Network, 2020), https://www.eanvt.org/wp-content/uploads/2020/10/Invest-in-Vermonters-A-Plan-to-Save-Money-Improve-Health-for-Low-and-Middle-Income-Households.pdf.

7. Renewable Greenhouse Gas Initiative[115]
8. Transportation and Climate Initiative[116]

It is important to note that under the new Biden administration, there is likely to be increased national spending on climate-related programs. This presents an opportunity for greater funding of state programs such as the GWSA. We also recognize there is still much to discuss in the area of funding. We recommend that future ENVS 0401 classes continue to research this issue.

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[115] "Welcome | RGGI, Inc.," accessed December 12, 2020, https://www.rggi.org/.

[116] "Homepage | Transportation and Climate Initiative," accessed December 12, 2020, https://www.transportationandclimate.org/.

X. Shortcomings

In the process of completing this project, we reached out to various groups who represented marginalized communities, but the past several months have been a busy and challenging time for everyone, particularly for groups working on issues of equity, justice, and access. The need to work fully remotely also limited our ability to contact groups and individuals directly. Many of the organizations and individuals we contacted either did not all respond to us or did not have time to meet. This does not mean their interests or their voices should be disregarded, and their absence from our report does not by any means signify that they are irrelevant. Policy-makers need to continue pushing to accommodate these groups and provide seats at the table in these discussions, while acknowledging the limitations that exist on time and access. Nothing should be done without incorporating the stakeholders, particularly those who are not always invited, or enabled, to participate, and whose voices have been historically undermined and undervalued.

Our research has focused on existing policies because of the time constraints and our inability to meet with community stakeholders. We recommend continuing to initiate conversations beyond the level we achieved. The research we have done is not comprehensive or representative of all groups. Our work provides only a narrow interpretation of the complex issue of energy equity in Vermont. As the state moves forward in its climate commitments and as the impacts of climate change become more visible, it is imperative that equity be the forefront of all future work. Equity, in this framework, is a component of justice. We hope that the work we have done serves as a small but meaningful step toward achieving a just future.

XI. What's Next?

It's imperative to remember that ensuring energy and environmental equity through the clean energy transition necessitates extensive community collaboration and insight in creating policies and programs meant to promote lasting, progressive change. As such, centering the voices of all people directly impacted by the passing of the GWSA and associated state-wide equity measures, especially BIPOC, low-income and other historically marginalized groups, is at the foundation of this important work. Crafting such policies is therefore a lifelong process that is highly intersectional and changes in relation to the development of community need and interest over time.

Throughout our project, we had the opportunity to reach out to many individuals and organizations working in the clean energy sector and committed to promoting equity within their respective spheres of influence, but did not however communicate directly with many people, groups or other institutions with firsthand experience dealing with high energy burdens and other associated issues. While it is important to recognize that these communities did not create the systemic challenges they face and therefore should not be asked to give up more of their time or resources single handedly fix problems of energy and environment inequity, they nonetheless must be brought to the table. Although our research provides a framework to build upon, more collaboration with the people who our policy recommendations would directly impact is necessary in order for this work to be applicable and realistic. There were also people, whose names we will share separately with our professors, who did not have time to work with us this semester but expressed interest in working with future ENVS 401 classes.

Beyond these measures, future research must also more extensively take into account payment methods, what has worked elsewhere, new ideas and innovations, and the hurdles that prevent energy and environmental equity policies and programs from being funded as robustly as the state requires. This also means that it must be determined what would work best in Vermont, as it relates to demographics and community need and interest, and what could never succeed, given cultural and socioeconomic characteristics. With this in mind, it is our hope that future Middlebury College ENVS 0401 student project groups and others will expand upon our research and work and continue to promote equitable policy in association with Vermont's GWSA and justice-oriented clean energy transition.

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